

Appl. No. : 08/835,732  
Filed : April 11, 1997

REMARKS:

Claims 8 and 11 have been amended by this paper, and claim 10 has been cancelled. Claims 1-7, 9, and 12-20 remain unchanged by this Amendment. Hence, by this paper, claims 1-9, and 11-20 are presented for examination.

The specific changes to the amended claims are shown on a separate set of pages attached hereto and entitled **VERSION WITH MARKINGS TO SHOW CHANGES MADE**, which follows the signature page of this Amendment. On this set of pages, the insertions are underlined while the ~~deletions are stricken through~~.

In the Office Action mailed September 28, 2001, the Examiner objected to claims 8 and 11 on the basis that the term "LCD housing assembly" lacked a proper antecedent basis. By this paper, claims 8 and 11 have been amended to delete the term "assembly". Accordingly, Applicant submits that the objection is overcome, and that these claims are proper and define subject matter which is patentable over the art of record.

Claim 10/3 was objected to under 37 CFR 1.75 as being a substantial duplicate of claim 7/3. In response to this objection, claim 10 has been cancelled by this paper.

Accordingly, Applicant submits that this objection is now overcome.

Claims 1-2, 15-16 and 20 were rejected under 35 USC §102(e) as being anticipated by Tsuchiyama et al., U.S. Patent No. 5,548,271 (hereinafter "Tsuchiyama").

Applicant notes that independent claim 1 recites that the computer display comprises "an LCD housing made in a single piece from a light conducting material." (Emphasis added). Similar limitations are included in independent claim 16. Accordingly, Applicant submits that independent claims 1 and 16 each include limitations which clearly define that the housing is made in a single piece from light-conducting material and functions as a light pipe for conducting light from a source to the LCD. Furthermore, independent claim 20 clearly defines the LCD housing as being made by a unitary construction of translucent material.

In the Office Action, the Examiner states:

"Tsuchiyama et al. disclose a data display pager which as understood is a computerized device. In the embodiment as described at column 3 and shown in figures 4 and 3B, the pager comprises a LCD display panel (12); a housing having a reflecting frame (36) and a light conducting plate (38) wherein the frame and the plate are formed integrally with

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each other; a set of light emitting diodes (12a, 12b) being substantially enclosed by the openings (38a, 38b) of the light conducting plate (38). As a result, the light conducting plate (38) guides light from the light emitting diodes (12a, 12b) to the LCD display panel (12) and simultaneously acts as a protecting element for the LCD display panel.”

Applicant notes that the figures referred to by the Examiner are directed to different embodiments of the invention. In particular, the embodiment illustrated in Figure 3B corresponds to the embodiment illustrated in Figure 2. In contrast, the illustration in Figure 4 is that of another embodiment of the back light structure which has been designated 32A, as opposed to the “32” illustrated in Figure 2. It appears that if one were to attempt to substitute the embodiment of Figure 4 into the illustration of Figure 3B, that the element 32A of Figure 4 would substitute for the entire element 32 of Figure 3B.

Applicant respectfully submits that the invention, as claimed herein, defines patentable subject matter over both the embodiment of Figure 2, and the embodiment of Figure 4, regardless of which one is implemented into the structure of Figure 3B.

With specific reference to Figure 3B, Applicant notes that the LED's 12a and 12b protrude into the reflection frame 30 via windows 30a. “A light conducting plate 32a is received in the reflection frame 30 over the LEDs 12a and 12b. Further, a diffusion sheet 32b is provided on the light conducting plate 32a.” (Col. 2, lines 37-40). The LCD 12 appears to abut against the surface of the diffusion sheet 32b.

The function of the Tsuchiyama device is described at column 2, lines 41-47 as follows: “As shown in Figs. 3A and 3B, the backlight 32 is received in the casing 10a of the pager 10 and extends along the rear of the LCD 12. When the backlight LEDs 12a are turned on, light emitted therefrom is extended to around the LEDs 12a by the light conducting plate 32a and then diffused by the diffusion sheet 32b. As a result, the light illuminates the LCD 12 from the rear uniformly.”

Thus, it is seen particularly from Figure 3B and the above description, that to reach the LCD 12, light must travel from the LED 12a and 12b past the reflection frame 30 and into the light conducting plate 32a. From there, the light must travel through the diffusion sheet 32b, before it is communicated to the LCD 12. Thus, the back light 32 defined in Figures 2, 3A and 3B, defines a housing which includes at least three different types of material. These include, a reflecting material defining reflection frame 30, a conducting material defining conducting plate

32a, and a material capable of diffusing light, defining diffusion sheet 32b. In order to accomplish these functions, the materials defining those components must, by necessity, comprise different structures. In contrast, Applicant's claim 1 defines "a LCD housing made in a single piece from a light conducting material". The backlight 32 of Figures 2, 3A and 3B comprises at least three different materials, one reflecting, one conducting and one diffusing. Clearly, they do not define a housing made in a single piece from a light conducting material. (See, e.g. claim 1). Similar limitations are included in claim 16. In view of the above, Applicant submits that there is neither any teaching in Tsuchiyama, nor any suggestion of such an LCD housing, or "means made in a single piece from a light conducting material", as defined in Applicant's claims 1 and 16).

Claim 20 defines "an LCD housing made by a unitary construction of translucent material". Applicant submits that there is no teaching in Tsuchiyama of the combination of the several layers described above into such a unitary construction. Furthermore, such an interpretation would be impossible since one of those layers defines a "reflection frame 30", (Col. 2, line 38) which clearly, is not translucent. This material is designed to reflect, rather than conduct light. Accordingly, Applicant submits that this combination of materials cannot comprise the "LCD housing made by a unitary construction of translucent material" as defined in claim 20.

With respect to the backlight embodiment 32A illustrated in Figure 4, Applicant again notes that this device comprises several layers of different types of materials. In particular, the reference notes that

"the back light, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively. A diffusion sheet 40 is positioned on the light conducting plate 38. The back light 32A is located at the rear of the LED 12 for illuminating it, as shown in Figure 3B." (Col. 3, lines 32-40).

Applicant notes that the LEDs 12a and 12b extend within apertures 38a and 38b so that they may communicate light into the conducting plate 38. Light in the plate is prevented from loss by the reflection frame 36, which surrounds the conducting plate 38. The light

communicated from the LEDs into the light conducting plate 38, must be further communicated through the defusion sheet 40 in order to be finally transmitted to the LCD 12. As with the embodiment described above, with reference to Figure 2, Applicant submits that the backlight 32A defining the embodiment of Figure 4 also requires the combination of several different members having different light conducting characteristics. In particular, the construction of the backlight 32A includes at least the reflection frame 36, the conducting plate 38 and the diffusion sheet 40. Clearly, the light transmission characteristics of each of these members is different from the other, and includes a reflection frame which is configured to not conduct light. Thus, Applicant submits that it is clear that the embodiment of Figure 4, when implemented into the backlight 32 of Figure 3B does not define "an LCD housing made in a single piece from a light conducting material". (See e.g. claim 1).

Even if all of these pieces of material making up the backlight 32A were light conducting, Applicant submits that it is obvious that the backlight 32A is not made in a single piece from a light conducting material, but rather from at least three pieces having different characteristics. Applicant submits that this distinction also applies with respect to claim 16, which defines a second means "made in a single piece from a light conducting material, for housing the display panel". Neither is the structure of Figure 4 made in a single piece from light conducting material, nor is it configured "for housing the display panel" (claim 16). Accordingly, Applicant submits that both claims 1 and 16 define subject matter which is patentable over the teachings of Tsuchiyama.

Applicant further submits that Figure 4 does not define or suggest subject matter which would either anticipate or make obvious "an LCD housing made by a unitary construction of translucent material" (claim 20). For the reasons set forth above, Applicant submits that the structure illustrated in Figure 4 does not define a unitary construction of any material, let alone a unitary construction of translucent material. Accordingly, for the reasons set forth above, Applicant submits that claim 20 also defines subject matter which is patentable over Tsuchiyama. Furthermore, since claims 2 and 15 both depend from claim 1, Applicant submits that these dependent claims also define subject matter which is patentable over Tsuchiyama for the reasons set forth above.

Claim 17 was rejected under 35 USC §103(a) as being unpatentable over Tsuchiyama. Applicant notes that claim 17 defines a method for conducting light in a computer system having

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an LCD and an LED housing. The method includes the step of conducting generated light "through the LCD housing to the LCD, wherein the LCD housing is made in a single piece from light conducting material. . . .". For the reasons set forth above with respect to claims 1, 16 and 20, Applicant submits that there is neither any teaching nor suggestion in Tsuchiyama which would anticipate or have made obvious such a step as set forth above. In particular, Applicant submits that there is no disclosure in Tsuchiyama of an LCD housing which is "made in a single piece from light conducting material". The Applicant submits that the provision of such a housing for accomplishing the conduction of light through the LCD housing to the LCD is necessary to accomplish the process in the manner described and claimed by Applicant. Accordingly, Applicant submits that independent claim 17 defines subject matter which is patentable over Tsuchiyama.

Dependent claims 3-14, 18 and 19 were also rejected under 35 USC §103(a). Claim 10 has been cancelled by this paper. Since each of claims 3-9, 11-14, 18 and 19 depends from one of the independent claims 1 or 17, Applicant submits that, for the reasons set forth above, these dependent claims also define subject matter which is patentable over the art of record.

In view of the above, Applicant submits that independent claims 1, 16, 17 and 20 define subject matter which is patentable over the art of record. Furthermore, since claims 2-9, 11-15, 18 and 19 each depend from one of the above-identified independent claims, Applicant submits that these claims also define subject matter which is patentable over the art of record.

Applicant notes that the amendments presented herein were in direct response to objections presented by the Examiner, and conform to the suggestions presented by the Examiner. Accordingly, Applicant submits that the amendments are merely formal in nature, and do not give rise to the necessity of further searching. Accordingly, Applicant respectfully requests that the amendments proposed herein be entered, and that this response after final be fully considered by the Examiner. Furthermore, Applicant respectfully submits that claims 1-9, and 11-20 are now in condition for immediate allowance and such prompt allowance of the same is respectfully requested.

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Conclusion

The Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, amendments to the claims for patentability purposes pursuant to statutory sections 102, 103 and/or 112, the reasons therefore, and arguments in support of the patentability of the pending claim set are presented above.

Any claim amendments which are not specifically discussed in the above remarks are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments. Rather, these amendments have only been made to increase claim readability, to improve grammar, and to reduce the time and effort required of those in the art to clearly understand the scope of the claim language. Any new claims presented above are of course intended to avoid the prior art, but are not intended as replacements or substitutes for any cancelled claims. They are simply additional specific statements of inventive concepts described in the application as originally filed.

In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

8. (Amended) The computer display of claim 4 wherein the LCD housing includes an inner surface, the light source is at least partially enclosed in the LCD housing such that a gap exists between the LCD and the inner surface of the LCD housing ~~assembly~~, and wherein light from the LCD housing is conducted through the gap.

11. (Twice Amended) The computer display of claim 4 wherein the light source is substantially enclosed in the LCD housing ~~assembly~~.

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